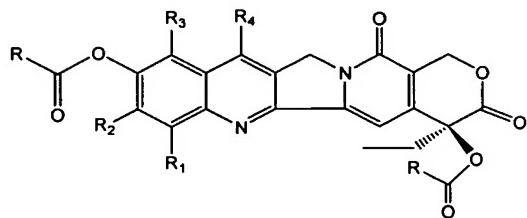


*AMENDMENTS TO THE CLAIMS*

1.-54. (Canceled)

55. (New) A di-ester derivative of camptothecin having the following general structure:



wherein

R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub>, which can be the same or different, are hydrogen, halogen, C<sub>1</sub>–C<sub>20</sub> alkyl, C<sub>1</sub>–C<sub>8</sub> alkoxy, C<sub>4</sub>–C<sub>20</sub> aryl or C<sub>1</sub>–C<sub>20</sub> silyl,

each R can be the same or different and is C<sub>1</sub>–C<sub>30</sub> alkyl, C<sub>2</sub>–C<sub>22</sub> alkenyl, C<sub>4</sub>–C<sub>30</sub> aryl, (CH<sub>2</sub>)<sub>n</sub>OR<sub>5</sub>, (CH<sub>2</sub>)<sub>n</sub>SR<sub>5</sub>, (CH<sub>2</sub>)<sub>n</sub>NR<sub>5</sub>R<sub>6</sub> or (CH<sub>2</sub>)<sub>n</sub>COR<sub>7</sub>,

wherein,

R<sub>5</sub> and R<sub>6</sub>, which can be the same or different, are C<sub>1</sub>–C<sub>8</sub> alkyl, C<sub>2</sub>–C<sub>6</sub> alkenyl or C<sub>4</sub>–C<sub>10</sub> aryl,

R<sub>7</sub> is hydroxy, C<sub>1</sub>–C<sub>20</sub> alkyl, C<sub>1</sub>–C<sub>6</sub> alkenyl, C<sub>1</sub>–C<sub>6</sub> alkoxy, C<sub>4</sub>–C<sub>20</sub> aryl, or NR<sub>8</sub>R<sub>9</sub>,

wherein,

R<sub>8</sub> and R<sub>9</sub>, which can be the same or different, are C<sub>1</sub>–C<sub>6</sub> alkyl,

and n is an integer of 1 to 8,

or a pharmaceutically acceptable salt thereof.

56. (New) A di-ester derivative of claim 55 wherein each R can be the same or different and is C<sub>1</sub>–C<sub>20</sub> alkyl, C<sub>2</sub>–C<sub>6</sub> alkenyl, or C<sub>4</sub>–C<sub>20</sub> aryl.

57. (New) A pharmaceutical composition comprising an effective amount of the camptothecin di-ester derivative of claim 55 and a pharmaceutically acceptable carrier or diluent.

58. (New) A pharmaceutical composition comprising an effective amount of the camptothecin di-ester derivative of claim 56 and a pharmaceutically acceptable carrier or diluent.

59. (New) The di-ester derivative of claim 55, wherein each of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> is H, and R is C<sub>3</sub>-C<sub>30</sub> alkyl.

60. (New) The di-ester derivative of claim 56, wherein each of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> is H, and R is C<sub>1</sub>-C<sub>20</sub> alkyl.

61. (New) The di-ester derivative of claim 55, wherein each of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> is H, and R is C<sub>2</sub>-C<sub>22</sub> alkenyl.

62. (New) The di-ester derivative of claim 56, wherein each of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> is H, and R is C<sub>2</sub>-C<sub>6</sub> alkenyl.

63. (New) The di-ester derivative of claim 55, wherein each of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub> is H, and R is (CH<sub>2</sub>)<sub>n</sub>OR<sub>5</sub>,

wherein,

R<sub>5</sub> is C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>2</sub>-C<sub>6</sub> alkenyl, or C<sub>4</sub>-C<sub>10</sub> aryl, and

n is 1 or 2.

64. (New) The di-ester derivative of claim 55, wherein each of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub> is H, and R is (CH<sub>2</sub>)<sub>n</sub>SR<sub>5</sub>,

wherein,

R<sub>5</sub> is C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>2</sub>-C<sub>6</sub> alkenyl, or C<sub>4</sub>-C<sub>10</sub> aryl, and

n is 1 or 2.

65. (New) The di-ester derivative of claim 55, wherein each of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub> is H, and R is (CH<sub>2</sub>)<sub>n</sub>NR<sub>5</sub>R<sub>6</sub>,

wherein,

R<sub>5</sub> and R<sub>6</sub> are independently, C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>2</sub>-C<sub>6</sub> alkenyl, or C<sub>4</sub>-C<sub>10</sub> aryl, and

n is 1 or 2.

66. (New) The di-ester derivative of claim 55, wherein each of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub> is H, and R is (CH<sub>2</sub>)<sub>n</sub>COR<sub>7</sub>,

wherein,

R<sub>7</sub> is hydroxy, C<sub>1</sub>–C<sub>6</sub> alkyl, C<sub>2</sub>–C<sub>6</sub> alkenyl, or C<sub>4</sub>–C<sub>10</sub> aryl, and

n is 2 to 4.

67. (New) The di-ester derivative of claim 55, wherein each of R<sub>1</sub>, R<sub>2</sub> and R<sub>3</sub> is H, R<sub>4</sub> is CH<sub>2</sub>CH<sub>3</sub>, and R is C<sub>1</sub>–C<sub>30</sub> alkyl.

68. (New) The di-ester derivative of claim 56, wherein each of R<sub>1</sub>, R<sub>2</sub> and R<sub>3</sub> is H, R<sub>4</sub> is CH<sub>2</sub>CH<sub>3</sub>, and R is C<sub>1</sub>–C<sub>20</sub> alkyl.

69. (New) The di-ester derivative of claim 55, wherein each of R<sub>1</sub>, R<sub>2</sub> and R<sub>3</sub> is H, R<sub>4</sub> is CH<sub>2</sub>CH<sub>3</sub>, and R is C<sub>2</sub>–C<sub>22</sub> alkenyl.

70. (New) The di-ester derivative of claim 56, wherein each of R<sub>1</sub>, R<sub>2</sub> and R<sub>3</sub> is H, R<sub>4</sub> is CH<sub>2</sub>CH<sub>3</sub>, and R is C<sub>2</sub>–C<sub>6</sub> alkenyl.

71. (New) The di-ester derivative of claim 55, wherein each of R<sub>1</sub>, R<sub>2</sub> and R<sub>3</sub> is H, R<sub>4</sub> is CH<sub>2</sub>CH<sub>3</sub>, and R is C<sub>4</sub>–C<sub>30</sub> aryl.

72. (New) The di-ester derivative of claim 56, wherein each of R<sub>1</sub>, R<sub>2</sub> and R<sub>3</sub> is H, R<sub>4</sub> is CH<sub>2</sub>CH<sub>3</sub>, and R is C<sub>4</sub>–C<sub>20</sub> aryl.

73. (New) The di-ester derivative of claim 55, wherein each of R<sub>1</sub>, R<sub>2</sub> and R<sub>3</sub> is H, R<sub>4</sub> is CH<sub>2</sub>CH<sub>3</sub>, and R is (CH<sub>2</sub>)<sub>n</sub>OR<sub>5</sub>,

wherein,

R<sub>5</sub> is C<sub>1</sub>–C<sub>6</sub> alkyl, C<sub>2</sub>–C<sub>6</sub> alkenyl, or C<sub>4</sub>–C<sub>10</sub> aryl, and

n is 1 or 2.

74. (New) The di-ester derivative of claim 55, wherein each of R<sub>1</sub>, R<sub>2</sub> and R<sub>3</sub> is H, R<sub>4</sub> is CH<sub>2</sub>CH<sub>3</sub>, and R is (CH<sub>2</sub>)<sub>n</sub>SR<sub>5</sub>,

wherein,

R<sub>5</sub> is C<sub>1</sub>–C<sub>6</sub> alkyl, C<sub>2</sub>–C<sub>6</sub> alkenyl, or C<sub>4</sub>–C<sub>10</sub> aryl, and

n is 1 or 2.

75. (New) The di-ester derivative of claim 55, wherein each of R<sub>1</sub>, R<sub>2</sub> and R<sub>3</sub> is H, R<sub>4</sub> is CH<sub>2</sub>CH<sub>3</sub>, and R is (CH<sub>2</sub>)<sub>n</sub>NR<sub>5</sub>R<sub>6</sub>,

wherein,

R<sub>5</sub> and R<sub>6</sub> are independently, C<sub>1</sub>–C<sub>6</sub> alkyl, C<sub>2</sub>–C<sub>6</sub> alkenyl, or C<sub>4</sub>–C<sub>10</sub> aryl, and n is 1 or 2.

76. (New) The di-ester derivative of claim 55, wherein each of R<sub>1</sub>, R<sub>2</sub> and R<sub>3</sub> is H, R<sub>4</sub> is CH<sub>2</sub>CH<sub>3</sub>, and R is CH<sub>2</sub>)<sub>n</sub>COR<sub>7</sub>,

wherein,

R<sub>7</sub> is hydroxy, C<sub>1</sub>–C<sub>6</sub> alkyl, C<sub>2</sub>–C<sub>6</sub> alkenyl, or C<sub>4</sub>–C<sub>10</sub> aryl, and n is 2 to 4.

77. (New) The di-ester derivative of claim 55, wherein each of R<sub>1</sub>, R<sub>2</sub> and R<sub>3</sub> is H, R<sub>4</sub> is Si(CH<sub>3</sub>)<sub>2</sub>C(CH<sub>3</sub>)<sub>3</sub>, and R is C<sub>1</sub>–C<sub>30</sub> alkyl.

78. (New) The di-ester derivative of claim 56, wherein each of R<sub>1</sub>, R<sub>2</sub> and R<sub>3</sub> is H, R<sub>4</sub> is Si(CH<sub>3</sub>)<sub>2</sub>C(CH<sub>3</sub>)<sub>3</sub>, and R is C<sub>1</sub>–C<sub>20</sub> alkyl.

79. (New) The di-ester derivative of claim 55, wherein each of R<sub>1</sub>, R<sub>2</sub> and R<sub>3</sub> is H, R<sub>4</sub> is Si(CH<sub>3</sub>)<sub>2</sub>C(CH<sub>3</sub>)<sub>3</sub>, and R is C<sub>2</sub>–C<sub>22</sub> alkenyl.

80. (New) The di-ester derivative of claim 56, wherein each of R<sub>1</sub>, R<sub>2</sub> and R<sub>3</sub> is H, R<sub>4</sub> is Si(CH<sub>3</sub>)<sub>2</sub>C(CH<sub>3</sub>)<sub>3</sub>, and R is C<sub>2</sub>–C<sub>6</sub> alkenyl.

81. (New) The di-ester derivative of claim 55, wherein each of R<sub>1</sub>, R<sub>2</sub> and R<sub>3</sub> is H, R<sub>4</sub> is Si(CH<sub>3</sub>)<sub>2</sub>C(CH<sub>3</sub>)<sub>3</sub>, and R is C<sub>4</sub>–C<sub>30</sub> aryl.

82. (New) The di-ester derivative of claim 56, wherein each of R<sub>1</sub>, R<sub>2</sub> and R<sub>3</sub> is H, R<sub>4</sub> is Si(CH<sub>3</sub>)<sub>2</sub>C(CH<sub>3</sub>)<sub>3</sub>, and R is C<sub>4</sub>–C<sub>20</sub> aryl.

83. (New) The di-ester derivative of claim 55, wherein each of R<sub>1</sub>, R<sub>2</sub> and R<sub>3</sub> is H, R<sub>4</sub> is Si(CH<sub>3</sub>)<sub>2</sub>C(CH<sub>3</sub>)<sub>3</sub>, and R is (CH<sub>2</sub>)<sub>n</sub>OR<sub>5</sub>;

wherein,

R<sub>5</sub> is C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>2</sub>-C<sub>6</sub> alkenyl, or C<sub>4</sub>-C<sub>10</sub> aryl, and  
n is 1 or 2.

84. (New) The di-ester derivative of claim 55, wherein each of R<sub>1</sub>, R<sub>2</sub> and R<sub>3</sub> is H, R<sub>4</sub> is Si(CH<sub>3</sub>)<sub>2</sub>C(CH<sub>3</sub>)<sub>3</sub>, and R is (CH<sub>2</sub>)<sub>n</sub>SR<sub>5</sub>,

wherein,

R<sub>5</sub> is C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>2</sub>-C<sub>6</sub> alkenyl, or C<sub>4</sub>-C<sub>10</sub> aryl, and  
n is 1 or 2.

85. (New) The di-ester derivative of claim 55, wherein each of R<sub>1</sub>, R<sub>2</sub> and R<sub>3</sub> is H, R<sub>4</sub> is Si(CH<sub>3</sub>)<sub>2</sub>C(CH<sub>3</sub>)<sub>3</sub>, and R is (CH<sub>2</sub>)<sub>n</sub>NR<sub>5</sub>R<sub>6</sub>,

wherein,

R<sub>5</sub> and R<sub>6</sub> are independently, C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>2</sub>-C<sub>6</sub> alkenyl, or C<sub>4</sub>-C<sub>10</sub> aryl, and  
n is 1 or 2.

86. (New) The di-ester of claim 55, wherein each of R<sub>1</sub>, R<sub>2</sub> and R<sub>3</sub> is H, R<sub>4</sub> is Si(CH<sub>3</sub>)<sub>2</sub>C(CH<sub>3</sub>)<sub>3</sub>, and R is CH<sub>2</sub>)<sub>n</sub>COR<sub>7</sub>,

wherein,

R<sub>7</sub> is hydroxy, C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>2</sub>-C<sub>6</sub> alkenyl, or C<sub>4</sub>-C<sub>10</sub> aryl, and  
n is 2 to 4.

87. (New) The di-ester derivative of claim 55, wherein R<sub>1</sub> is CH<sub>2</sub>N(CH<sub>3</sub>)<sub>2</sub>, each of R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub> is H, and R is C<sub>1</sub>-C<sub>30</sub> alkyl.

88. (New) The di-ester derivative of claim 56, wherein R<sub>1</sub> is CH<sub>2</sub>N(CH<sub>3</sub>)<sub>2</sub>, each of R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub> is H, and R is C<sub>1</sub>-C<sub>20</sub> alkyl.

89. (New) The di-ester derivative of claim 55, wherein R<sub>1</sub> is CH<sub>2</sub>N(CH<sub>3</sub>)<sub>2</sub>, each of R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub> is H, and R is C<sub>2</sub>-C<sub>22</sub>alkenyl.

90. (New) The di-ester derivative of claim 56, wherein R<sub>1</sub> is CH<sub>2</sub>N(CH<sub>3</sub>)<sub>2</sub>, each of R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub> is H, and R is C<sub>2</sub>-C<sub>6</sub> alkenyl.

91. (New) The di-ester derivative of claim 55, wherein R<sub>1</sub> is CH<sub>2</sub>N(CH<sub>3</sub>)<sub>2</sub>, each of R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub> is H, and R is C<sub>4</sub>-C<sub>30</sub> aryl.

92. (New) The di-ester derivative of claim 56, wherein R<sub>1</sub> is CH<sub>2</sub>N(CH<sub>3</sub>)<sub>2</sub>, each of R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub> is H, and R is C<sub>4</sub>-C<sub>20</sub> aryl.

93. (New) The di-ester derivative of claim 55, wherein R<sub>1</sub> is CH<sub>2</sub>N(CH<sub>3</sub>)<sub>2</sub>, each of R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub> is H, and R is (CH<sub>2</sub>)<sub>n</sub>OR<sub>5</sub>,

wherein,

R<sub>5</sub> is C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>2</sub>-C<sub>6</sub> alkenyl, or C<sub>4</sub>-C<sub>10</sub> aryl, and  
n is 1 or 2.

94. (New) The di-ester derivative of claim 55, wherein R<sub>1</sub> is CH<sub>2</sub>N(CH<sub>3</sub>)<sub>2</sub>, each of R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub> is H, and R is (CH<sub>2</sub>)<sub>n</sub>SR<sub>5</sub>,

wherein,

R<sub>5</sub> is C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>2</sub>-C<sub>6</sub> alkenyl, or C<sub>4</sub>-C<sub>10</sub> aryl, and  
n is 1 or 2.

95. (New) The di-ester derivative of claim 55, wherein R<sub>1</sub> is CH<sub>2</sub>N(CH<sub>3</sub>)<sub>2</sub>, each of R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub> is H, and R is (CH<sub>2</sub>)<sub>n</sub>NR<sub>5</sub>R<sub>6</sub>,

wherein,

R<sub>5</sub> and R<sub>6</sub> are independently, C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>2</sub>-C<sub>6</sub> alkenyl, or C<sub>4</sub>-C<sub>10</sub> aryl, and  
n is 1 or 2.

96. (New) The di-ester derivative of claim 55, wherein R<sub>1</sub> is CH<sub>2</sub>N(CH<sub>3</sub>)<sub>2</sub>, each of R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub> is H, and R is (CH<sub>2</sub>)<sub>n</sub>COR<sub>7</sub>,

wherein,

R<sub>7</sub> is hydroxy, C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>2</sub>-C<sub>6</sub> alkenyl, or C<sub>4</sub>-C<sub>10</sub> aryl, and  
n is 2 to 4.

97. (New) A method to inhibit the enzyme topoisomerase I in an animal in need thereof comprising administering to the animal an effective amount of a composition comprising at least one di-ester derivative of claim 55.

98. (New) A method to inhibit the enzyme topoisomerase I in an animal in need thereof comprising administering to the animal an effective amount of a composition comprising at least one di-ester derivative of claim 56.

99. (New) A method to treat cancer in a patient comprising administering a composition comprising at least one di-ester derivative of claim 55 to said patient in an effective amount to treat said cancer.

100. (New) A method to treat cancer in a patient comprising administering a composition comprising at least one di-ester derivative of claim 56 to said patient in an effective amount to treat said cancer.

101. (New) The method of claim 99, wherein said cancer is lung, breast, colon, prostate, melanoma, pancreas, stomach, liver, brain, kidney, uterus, cervix, ovaries, urinary tract, gastrointestinal, or leukemia.

102. (New) The method of claim 100, wherein said cancer is lung, breast, colon, prostate, melanoma, pancreas, stomach, liver, brain, kidney, uterus, cervix, ovaries, urinary tract, gastrointestinal, or leukemia.

103. (New) The method of claim 99, wherein said cancer is solid tumor or blood borne tumor.

104. (New) The method of claim 100, wherein said cancer is solid tumor or blood borne tumor.

105. (New) The method of claim 99, wherein said composition is administered orally, parenterally, intramuscularly, transdermally or by an airborne delivery system.

106. (New) The method of claim 100, wherein said composition is administered orally, parenterally, intramuscularly, transdermally or by an airborne delivery system.

107. (New) The method of claim 99, wherein said composition is a nanoparticle containing said at least one di-ester of camptothecin.

108. (New) The method of claim 100, wherein said composition is a nanoparticle containing said at least one di-ester of camptothecin.

This listing of claims replaces all prior versions, and listings, of claims in the application.